EC 1.14.99.36

β -carotene 15,15'-monooxygenase

Return to:

enzymes homepage.

EC 1.14.99.36 β-carotene 15,15'-monooxygenase

[LinkDB]

ENTRY EC 1.13.11.11 Obsolete NAME Transferred to 1.14.33.33

CLASS Oxidoreductases

Acting on sample domers with incorporation of molecular oxygen

(oxygenases)

With incorporation of two atoms of oxygen

COMMENT Transferred entry: now EC 1.14.99.36, beta-carotene

15,15'-monooxygenase (EC 1.13.11.21 created 1972, deleted 2001)

DBLINKS IUBMB Enzyme Nomenclature: 1.13.11.21

EmpASy - EMBYME nomenclature database: 1.13.11.21

WIT (What Is There) Metabolic Reconstruction: 1.13.11.21

BRENDA, the Enzyme Database: 1.13.11.21

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[KEGG | DBGET | GenomeNet]

[LinkDB]

EC 1.14.99.36 ENTEY beta-ranotene 15,15'-monobxygenase NAME :muta-ranatene 15,15'-dioxygenase, danotene dioxygenase Harotene 15,15'-dioxygenase DLASS PRidoreductares Acting on paired donors with incorporation of molecular oxygen Miscellaneous SYSNAME buta-ranstene:exygen 15,16'-exidereductase (bend-cleaving) REACTION peta-ranstens + 02 = 2 retinal SUBSTRATE : ort am there. PRODUCT :<u>:</u>::ir.:: DEMMENT Requires mile salts and Fe(II). The reaction proceeds in three stages, epox: lation of the 18,15'-double bond, hydration of the woubly bond leading to ring opening, and oxidative cleavage of the tial termed of. BC 1.14.15.8, analesteral monochygenase .side-chain-bleaving(). Thus only one atom of the dioxygen is indomporated into retinal. Formerly EC [.j].ll..l as it was nunsideret ti be a dioxygenase. F.F.FERENCE bewerkerger, M.S., Engeloch-Carret, C. and Woggen, W.D. The reaction mechanism of the enzyme-datalysed central dleavage of reta-rapotene to retinal. Andew. Chem. Int. Ed. 40 (2001) 2614-2616. 3 odman, D.S., Huang, H.S., Hanai, M. and Shiratori, T. The ensymptic conversion of all-trans beta-parotene into retinal. J. Bisl. Chem. (48 (1967) 3843-3854. : [PMID::34/77]] Goodman, D.S., Huang, H.S. and Shiratori, T. Mechanism of the blosynthesis of vitamin A from beta-carptene. J. Biol. Chem. 241 .1956; 1919-1952. PATHWAY PATH: MAE: 08: Retinol metabolism OFTHOLOG $\text{KO:}\ \underline{\text{KO}(515)}\ \text{buta-carotene}\ 15,15'-\text{monooxygenase}$ HPA: <u>1363</u>1 (BCD0) GENES MMU: 63857 (Bode) F110: 1141(6(Brac) DFE: 54034(bada) EISEASE MIM: £05748 Feta-carctere 15,15-prime-dioxygenase DELINKS IMBMP Enzyme Nomenclature: 1.14.33.36 EMPASy - ENERGE nomenclature database: 1.14.99.36WIT (What Is There) Metabolic Reconstruction: 1.14.99.36 BRENDA, the Endyme Database: 1,14.99.36 CAS: 37250-60-3

| KEGG | DBGET | GenomeNet |

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[LinkDB]

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EC 1.14.33.36
ENTRY
NAME
            :-ta-carotene 15,15'-monooxygenase
            :eta-parotene 15,15'-dioxygenase, carotene dioxygenase
            carotone It, 15' - Hoxygenase
            Omidonedum ases
CLASS
            Arting on paired donors with incorporation of molecular oxygen
            Miscellareius
            t-ta-carotene:oxygen 15,15'-oxidereductase (bond-cleaving)
SYSNAME
           3 + ta + carrieone + 32 = 2 retinal
REACTION
SUBSTRATE
            intanjar. Mine
PRODUCT
            : - t i: . : l
COLMENT
            to quires size saits and Fe(II). The reaction proceeds in three
            stages, epoxidation of the 18,15'-double bond, hydration of the
            muble bind leading to ring ipening, and oxidative cleavage of the
            aiol formed [of. EC 1.14.15.6, cholester: | monockygenase
            uside-chain-clearing)). Thus only one atom of the dioxygen is
            uncomposated unto retinal. Firmerly BD 1.15.11... as it was
            o nso terma to be a dioxygenase.
EEFERENCE
            levencesper, M.G., Engelock-Carret, C. and Woggon, W.D. The
            readtion membanism of the enzyme-datalysed central bleavage of
            Fe ta-rarotene to retinal. Angew. Chem. Int. Ed. 40 (2001) 2614-2616.
            Gradman, D.S., Huang, H.S., Manai, M. and Shiratori, T. The
            enzymatic conversion of all-trans beta-carotene into retinal. J.
            Bibl. Chort. 342 1967) 3848-8854.
            3 (PMID: 5346623
            Goodman, P.S., Huang, H.S. and Shiratori, T. Mechanism of the
            klosynthesus of vitamin A from beta-parotene. J. Biol. Chem. 241
            1966 19.9-1902.
EATHWAY
            FATH: MAR (Fig. Retinal metabolism
            EC: F1351: Desta-darotene 15,15'-mondoxygenase
OF THOLOG
            HCA: | | 5550 (BCDC)
MMU: | | 385 | (Bcdc)
GLNES
            H10: <u>[14106</u> Brao
            TRE: F4039 (block
            MIM: +05\%6 beta-carotene 15,15-prime-dioxygenase
DISEASE
DELINKS
            IMBMH Encyme Memenclature: 1.14.99.36
            EMPASy - ENGYME nomenclature database: 1.14.99.36
            WIT What Is There) Metabolic Reconstruction: 1.14.99.36
            EFENDA, the Enzyme Database: 1.14.99.36
            CAS: 07256-80-3
1,,
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